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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/654,343	09/03/2003	Seiichi Nakatani	10873.0813USD1	4963

7590 05/10/2006

Hamre, Schumann, et al  
PO Box 2902-0902  
Minneapolis, MN 55402

EXAMINER
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CHANG, RICK KILTAE

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 05/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/654,343	<b>Applicant(s)</b> NAKATANI ET AL.	
	<b>Examiner</b> Rick K. Chang	<b>Art Unit</b> 3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 17 April 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 15-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15,20-28 and 33-35 is/are rejected.
- 7) ☒ Claim(s) 16-19,29-32 and 36 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 15, 25-27, and 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Somaki et al (US 5,641,113) in view of Chen et al (US 6,260,264).

Somaki discloses at least one electric element (13b), a connection electrode (13a), a wiring pattern (12), a thermosetting resin (34), Fig. 4c shows portions of 13b and 34 are removed, PCB (col. 1, lines 14-41). The device as shown in Fig. 2E is a flip chip (Abstract); therefore the reference discloses flip chip mounting.

Somaki fails to disclose grinding the electric element with an abrasive at the same time and dicing into individual components.

Chen discloses in Fig. 1b grinding the electric element with an abrasive at the same time and Fig. 9C shows dicing in dotted lines.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Somaki by grinding the electric element, as taught by Chen, for the purpose of forming individual electronic components to electrically communicate with other electronic components.

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3. Claims 20-23 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Somaki et al (US 5,641,113)/Chen et al (US 6,260,264) as applied to claims 15, 25-27, and 33-34 above, and further in view of Janssen et al (US 3,634,168).

Somaki/Chen disclose an uncured sheet-like object (col. 5, lines 5-42) and heating to cure.

Somaki/Chen fail to disclose heating and compression, heating temperature as disclosed in claims 20-23 and 35.

Janssen discloses heating and compression, heating temperature as disclosed in claims 20-23 (col. 4, lines 37-53).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Somaki/Chen by heating and compression, heating temperature as disclosed in claims 20-23 and 35, as taught by Janssen, for the purpose of protecting and adhering the connection of electronic components.

4. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Somaki et al (US 5,641,113)/Chen et al (US 6,260,264) as applied to claims 15, 25-27, and 33-34 above, and further in view of Saito (US 4,913,697).

Somaki/Chen fail to disclose 70wt% to 95wt% of an inorganic filler and 5wt% to 30wt% of a thermosetting resin.

Saito discloses 70wt% to 95wt% of an inorganic filler and 5wt% to 30wt% of a thermosetting resin (col. 9, lines 50-52).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Somaki/Chen by providing 70wt% to 95wt% of an inorganic filler and

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5wt% to 30wt% of a thermosetting resin, as taught by Saito, for the purpose of providing superior processability and heat resistance to the electronic component.

5. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Somaki et al (US 5,641,113)/Chen et al (US 6,260,264) as applied to claims 15, 25-27, and 33-34 above, and further in view of Official Notice.

Somaki/Chen fail to disclose that the support is formed of an organic film or a metal foil.

Official Notice is taken that it is well known in the art to form the support of a metal foil to form a heat spreader.

#### *Allowable Subject Matter*

6. Claims 16-19, 29-32 and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### *Response to Arguments*

7. Applicant's arguments filed 4/17/06 have been fully considered but they are not persuasive.

The device as shown in Fig. 2E is a flip chip (Abstract); therefore the reference discloses flip chip mounting.

#### *Interviews After Final*

8. **Applicant note that an interview after a final rejection must be submitted briefly in writing the intended purpose and content of the interview (the agenda of the interview must be in writing). Upon review of the agenda, the Examiner may grant the interview if the examiner is convinced that disposal or clarification for appeal may be accomplished**

**with only nominal further consideration. Interviews merely to restate arguments of record or to discuss new limitations will be denied. See MPEP 714.13 and 713.09.**

*Conclusion*

9. Please provide reference numerals (either in parentheses next to the claimed limitation or in a table format with one column listing the claimed limitation and another column listing corresponding reference numerals in the remark section of the response to the Office Action) to all the claimed limitations as well as support in the disclosure for better clarity (optional). Applicants are duly reminded that a full and proper response to this Office Action that includes any amendment to the claims and specification of the application as originally filed requires that the applicant point out the support for any amendment made to the disclosure, including the claims. See 37 CFR 1.111 and MPEP 2163.06.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick K. Chang whose telephone number is (571) 272-4564. The examiner can normally be reached on 5:30 AM to 1:30 PM, Monday through Thursday.

The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and (571) 273-8300 for After Final communications.

A handwritten signature in black ink, consisting of stylized, overlapping loops and a long horizontal stroke at the end, positioned above a solid horizontal line.

**RICHARD CHANG  
PRIMARY EXAMINER**

RC  
May 8, 2006